**Gender differences in response to Facebook status updates from same and opposite gender friends**

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**Abstract**

We conducted two studies to examine gender differences in response to Facebook status updates from same and opposite gender friends. Study 1 surveyed 522 undergraduate students (216 females and 306 males), and compared males' and females' responses to two Facebook status updates: one from a same gender friend and one from an opposite gender friend. Females' public replies and private messages to a female friend showed higher levels of emotional support than males' public replies and private messages to a male friend. In contrast, there were no significant gender differences in response to an opposite gender friend. Furthermore, males showed higher levels of emotional support in private messages than in public replies to male friends. Study 2 recruited 484 participants (295 females and 189 males) using CrowdFlower. Approximately half received a Facebook status update from a same gender friend and the other half received it from an opposite gender friend. Females' public replies to a female friend showed significantly high levels of emotional support than males' public replies to a male friend and there was a similar but marginally significant gender difference for private replies to same gender friends. There was no gender difference in response to opposite gender friends. The practical and theoretical implications of these findings are discussed.

## 1. Introduction

Females generally use social media sites more than males (Duggan, Ellison, Lampe, Lenhart, and Madden, 2015; Lenhart 2015). Duggan et al. (2015) reported 77% of female Internet users used Facebook compared to only 66% of male Internet users. They found that this gender differences was even greater for the more visually-oriented social networking sites, such as Pinterest (42% female internet users, 13% male internet users), whereas the opposite was true for Twitter (21% female internet users, 24% male internet users). Moreover, females spend more time using social media sites than males. Denti, Barbopuolos, Nilsson, Holmberg, Thulin, Wendeblad. and Davidsson, (2012) found that females spend 84 minutes a day on Facebook, compared to 64 minutes for males. Furthermore, there are gender differences in social media use. Females use social media for communicating and connecting with others, whilst males use social media for gathering information (Denti et al., 2012; Junco, 2013; Smith, 2011). In addition, there are gender differences in language use on social media. Thelwall, Wilkinson and Uppal (2009) investigated gender differences in the use of emotional language in MySpace comments. Compared to males' comments, females' comments contained more instances of positive emotion and support. Wang Burke and Kraut (2013) explored gender differences in of Facebook status updates. Females shared more personal topics, whilst males discussed more public topics. Walton and Rice (2013) analyzed 3751 tweets and found that females were more positive, disclosed more information and disclosed more private information than males. Finally, Brandtzaeg (2015) investigated Facebook liking practices regarding expressions of civic engagement among 21,706,806 Facebook users in 10 countries and found distinct gender differences concerning those practices.

These findings on gender differences in language use on social media are consistent with research regarding gender differences in language in general (Leaper, 2014). Leaper (2014), in a review of gender

differences in language, reports that studies have consistently shown that females are more likely to use affiliative language (used for connecting to others), whereas males are more likely to use assertive language (used for dominance and achieving practical goals). There are three major explanations for these gender differences in language and they differ in how much emphasis they place on socialization, social situational demands, or biological predisposition. These explanations are not mutually exclusive and can be complimentary. In this paper, we focussed on the two social explanations.

The first social explanation is the socialization approach (Maltz & Borker, 1982 Leaper & Ayres, 2007, Leaper, 2014), which emphasizes the impact of children's participation in gender stereotypical activities in same sex peer groups. Children develop different norms and social identities and use language differently when they participate in gender segregated peer groups. Girls' interactions are more likely to involve cooperative social dramatic activities, and boys are more likely to participate in more solitary or competitive group play (Maccoby, 1998). These gender differences in activities lead to gender differences in language use (Maltz & Borker, 1982 Leaper & Ayres, 2007, Leaper, 2014) where boys use language to assert their dominance through commands and challenging statements, whereas girls learn to use language to create and maintain social closeness through supportive and inclusive forms of talk. This theory predicts that gender differences in language will be greatest in same gender interactions (i.e. when comparing male-male and female-female communication), because partners of the game gender share similar social norms concerning language and communication (Carli, 1989, 1990; Leman, Ahmed, & Ozarow, 2005; Leman, Macedo, Bluschke, Hudson, Rawling, & Wright, 2011, Leaper, 2014).

The second social explanation is the social context, or social constructivist approach (Leaper & Ayres, 2007). It emphasizes the social interactive impact of context, rather than individual factors. Males' and females' language and communication change as the contextual factors change. One important contextual factor is males' greater status in society. Males may dominate social interactions through the use of more assertive language, whereas women may be more likely to act subordinately through using more affiliative language. This explanation would predict fewer differences between males and females in same-gender interactions because it is within opposite-gender interactions that gender becomes a status characteristic (Carli, 1989, 1990; Leman, Ahmed, & Ozarow, 2005; Leman, Macedo, Bluschke, Hudson, Rawling, & Wright, 2011, Leaper, 2014). Another important contextual factor is group size and familiarity. Deaux and Major (1987) reported that people behave in more stereotypical ways in front of larger and unfamiliar groups. Thus, females are more likely to use affiliative language than males in a large group context in front of unfamiliar people, whereas in private communication with a familiar person these gender differences in affiliative language will be reduced. It would predict that any gender differences will be greater in public context in front of unfamiliar people than in private contexts with friends.

The authors conducted a study on gender differences in the language responding to Facebook status updates and found that females were significantly more supportive than males when responding to a Facebook status update in a public forum, but there were no gender differences in the level of support in private messaging (Authors). These findings support the social context explanation because the gender difference observed for public replies disappeared altogether for private messages. The authors asked the participants how they would respond to a Facebook status update from a close friend, but they did not specify whether it was a friend of the same or opposite gender. Interestingly, the different social

explanations of gender differences in language make different predictions concerning language in relation to a same or opposite gender friends (Carli, 1989, 1990; Leman, Ahmed, & Ozarow, 2005; Leman, Macedo, Bluschke, Hudson, Rawling, & Wright, 2011, Leaper, 2014). The socialization explanation predicts that the greatest gender differences would be observed in the use of language in same gender interactions, because both parties would follow the same behavioral norms. In contrast, the social context explanation predicts that gender differences in language use would be greatest in opposite gender interactions, because gender becomes a status characteristic in opposite gender interactions (Carli, 1989, 1990; Leman, Ahmed, & Ozarow, 2005; Leman, Macedo, Bluschke, Hudson, Rawling, & Wright, 2011, Leaper, 2014).

The aim of the current study was to replicate and extend the authors study by investigating gender differences in the level of emotional support when responding to a friend of the same gender compared to a friend of the opposite gender in public and private contexts. We are comparing the social context and socialization hypotheses explanations for the gender differences in response to Facebook status updates by testing the following hypotheses.

**H1**: Gender differences in level of emotional support when responding to a Facebook status update will be greatest when participants are responding to a same gender friend (socialization hypothesis).

**H2**: Gender differences in level of emotional support when responding to a Facebook status update will be greatest when responding to an opposite gender friend (social context hypothesis).

**H3:** Gender differences in level of emotional support when responding to a Facebook status update will be greatest in public contexts compared to private contexts (social context hypothesis).

## 2. Study 1

### 2.1 Method

#### *2.1.1 Participants*

The participants were 522 undergraduate students from the University of Bath and the University of Gloucester (306 males and 216 were females), with a mean age of 19.01 years (*SD* = 2.09). Ninety nine percent of the sample was aged between 17 and 25.

#### *2.1.2 Procedure*

The questionnaire was distributed during lectures and contained two Facebook status updates: "I'm having a really rubbish day" and "It's only midday and today can't get any worse. Need a hug." The messages were either from their best male or female friend and participants were asked if they would write a public reply on the status ("Yes" or "No"), and/or send a private message ("Yes" or "No"). If they indicated they would write a public reply or a private message, they were asked what they would write. The order of the Facebook status update and the gender of the close friend were counterbalanced. The Facebook status updates were selected as examples of negative self-disclosures and using the classification scheme developed by Winter et al. (2014) they were classified as personal Facebook status updates. Winter et al. (2014) found that they were the most common Facebook status updates. They are also topics that are more likely to be posted by females than males (Thelwall, Wilkinson, & Uppal, 2013).

*2.1.3 Measures*

The level of emotional support was measured using the classification system developed by Thelwall et al. (2009), shown in Table 1. The scale was adapted to include unsupportive elements, because as will be reported in the results, some of the comments were very unsupportive.

Table 1.

*Coding System for Levels of Support in Facebook Status Responses.*

| Level | Label | Examples |
|---|---|---|
| '-1' | Unsupportive elements | 'Grow a pair of balls' |
| '0' | Absence of any supportive elements | 'My day is probably worse than yours' |
| '1' | Some weak supportive elements | 'What's wrong?' |
| '2' | Clear supportive elements | 'Hey, what's wrong? Give me a call xxx' |
| '3' | Overwhelmingly supportive elements | 'Ah what's up? Are you ok? Do you want to talk? Big hugs? Xx' |

Two raters coded the responses and the level of agreement between the two raters for public replies was kappa = 0.84, and for private messages kappa = 0.77.

**2.2 Results**

We first analyzed whether there were any gender differences in response to a Facebook status update from a same gender friend. There was a significant gender difference (as shown in Table 2), in terms of

the level of emotional support in public replies ($t(91) = -5.11$, $p < 0.005$, $d = 1.13$). Females ($M = 1.35$, $SD = 0.68$) showed higher levels of support than males ($M = 0.26$, $SD = 1.24$). Table 2 shows that 40% of the comments made by males in response to a Facebook status update from a male friend were unsupportive compared with only 1 (2.3%) from a female. Some of the more printable comments included 'Grow a set of balls', 'Man up' and 'Stop Attention Seeking'.

Table 2.

*Public Replies to same gender friend's Facebook Status Update.*

| | Male | | Female | |
|---|---|---|---|---|
| Code | N | % | N | % |
| Unsupportive elements | 20 | 40.0 | 1 | 2.3 |
| Absence of any supportive elements | 10 | 20.0 | 2 | 4.7 |
| Some weak supportive elements | 7 | 14.0 | 21 | 48.8 |
| Clear supportive elements | 13 | 26.0 | 19 | 44.2 |
| Overwhelmingly supportive elements | 0 | 0.0 | 0 | 0.0 |

In addition, there was a significant gender difference (as shown in Table 3), in the level of emotional support in private messages, although the effect size was a lot smaller than the effect size for public replies ($t(206) = -3.80$, $p < 0.005$, $d = 0.53$). Females ($M = 1.35$, $SD = 0.51$) showed higher levels of

support than males ($M$ = 1.03, $SD$ = 0.69) and for private messages only 5.5% of the responses from males were classified as unsupportive.

Table 3.

*Private messages to same gender friend's Facebook Status Update.*

| | Male | | Female | |
|---|---|---|---|---|
| Code | N | % | N | % |
| Unsupportive elements | 5 | 5.5 | 0 | 0.0 |
| Absence of any supportive elements | 4 | 4.4 | 0 | 0.0 |
| Some weak supportive elements | 66 | 72.5 | 78 | 66.7 |
| Clear supportive elements | 15 | 16.5 | 37 | 31.6 |
| Overwhelmingly supportive elements | 1 | 1.1 | 2 | 1.7 |

We compared the level of emotional support in public replies and private messages and used non parametric statistics because of the small sample size. Males showed significantly higher levels of emotional support in private messages than in public replies, Wilcoxon Signed Ranks test $z$ = 2.48, $p$ = 0.013, $d$ = 1.09, whereas there was no significant difference between levels of emotional support in female public replies compared with their private messages, Wilcoxon Signed Ranks test $z$ = 0.58, $p$ = 0.56, $d$ = 0.13 .

Next we analyzed whether there were any gender differences in response to a Facebook status update from an opposite gender friend and found no significant gender differences in response to a Facebook status update in public replies ($t(76) = 0.12$, $p > 0.05$, $d = 0.03$). Females ($M = 1.09$, $SD = 0.79$) showed the same levels of support as males ($M = 1.09$, $SD = 0.91$) and 9% of males and 4% of females were unsupportive (see Table 4).

Table 4.

*Public Replies to opposite friend's Facebook Status Update.*

| | Male | | Female | |
|---|---|---|---|---|
| Code | N | % | N | % |
| Unsupportive elements | 3 | 9.1 | 2 | 4.4 |
| Absence of any supportive elements | 3 | 9.1 | 6 | 13.3 |
| Some weak supportive elements | 15 | 45.5 | 23 | 51.1 |
| Clear supportive elements | 12 | 36.4 | 14 | 31.1 |
| Overwhelmingly supportive elements | 0 | 0.0 | 0 | 0.0 |

Males ($M = 1.29$, $SD = 0.56$) showed slightly higher levels of support compared to females ($M = 1.24$, $SD = 0.45$) in private messages to opposite gender friend, but this difference was not significant (t (187)

= 0.70, $p > 0.05$, $d = 0.12$). There were no unsupportive private messages to opposite gender friends (see Table 5.

Table 5.

*Private messages to opposite gender friend's Facebook Status Update.*

| | Male | | Female | |
|---|---|---|---|---|
| Code | N | % | N | % |
| Unsupportive elements | 0 | 0.0 | 0 | 0.0 |
| Absence of any supportive elements | 4 | 4.5 | 1 | 1.0 |
| Some weak supportive elements | 56 | 62.9 | 74 | 74.0 |
| Clear supportive elements | 28 | 31.5 | 25 | 25.0 |
| Overwhelmingly supportive elements | 1 | 1.1 | 0 | 0.0 |

**3. Study 2**

Study 2 was designed to extend and replicate study 1 by using a sample with a broader age range than study 1. The sample in study 2 was recruited using crowdsourcing, which has been shown to result in a more diverse sample than samples drawn from undergraduate students (Buhrmester, Kwang, & Gosling,

2011). We also changed the design to a between participants design to remove any chance of response bias and finally we used 5 completely different Facebook Status updates.

**3.1 Method**

*3.1.1 Participants*

Four hundred and eighty four CrowdFlower workers (295 females and 189 males) participated in the study and were paid $1 to complete the study. Table 6 shows age distribution of the sample and in contrast to the previous study, 87% of the sample were aged 25 or above.

Table 6

*Distribution of participants' age*

| | Total | |
|---|---|---|
| Age | *n* | % |
| 18 – 24 | 63 | 13.0 |
| 25 – 34 | 157 | 32.4 |
| 35 – 44 | 129 | 26.7 |
| 45 – 54 | 90 | 18.6 |
| 55 – 64 | 34 | 7.0 |
| over 65 | 11 | 2.3 |

*3.1.2 Procedure*

The participants completed an online questionnaire distributed via CrowdFlower and were randomly shown one of the following five Facebook status updates, which were collected from the authors' Facebook newsfeed.

1. So stressed. Just checked my bank balance. No money No life
2. Drowning my sorrows tonight after an awful day
3. Everything seems to be going against me these days. Why me
4. Got so much work to do right now. Hating life right now. Could it get much worse
5. My life really sucks. Done with everything and everyone right now

Half were told the Facebook status update was from a close male friend and the other half were told it was from a close female friend. Therefore participants were in one of the following four groups

1. Females responding to a Facebook Status Update from a Female Friend
2. Females responding to a Facebook Status Update from a Male Friend
3. Males responding to a Facebook Status Update from a Female Friend
4. Males responding to a Facebook Status Update from a Male Friend

They were asked if they would 'write a public reply to the Facebook status update, and/or send a private message. If they indicated they would, they were asked what they would write.

*3.1.3 Measures*

The level of emotional support expressed in the public replies and private messages was analysed by using the classification system used in study 1. Inter rater reliability for public messages was kappa = 0.84, and for private messages it was kappa = 0.81.

**3.2 Results**

Table 7. shows the differences between the four groups in terms of level of emotional support in public replies and private replies to Facebook status updates. Using a one way Analysis of Variance, there was a significant difference between the four groups in terms of level of emotional support in public replies to Facebook status updates ($F(3,158) = 6.94$, $p < 0.0005$, $\eta_p^2 = 0.12$). Scheffe post hoc analysis revealed that males responding to males showed significantly less emotional support than females responding to

females. Only 9% of the responses from males to males were classified as unsupportive. The gender difference between the four groups in terms of level of emotional support in private messages to Facebook status updates was similar to the gender difference for public replies (see table 5). Females' private messages to females were higher in terms of level of emotional support than males' private messages to males, but this difference was not significant ($F$ (3,169) = 2.28, $p < 0.10$, $\eta_p^2 = 0.04$). Males' level of emotional support was higher in private messages than public messages, but this difference was not significant.

Table 7.

*Gender differences in Public Replies and Private Messages to Facebook Status Update.*

| | Public Replies | | Private Messages | |
|---|---|---|---|---|
| Group | M | SD | M | SD |
| Females responding to Females | $1.80_a$ | 0.58 | 1.78 | 0.52 |
| Females responding to Males | 1.61 | 0.59 | 1.64 | 0.52 |
| Males responding to Females | 1.37 | 0.79 | 1.63 | 0.61 |
| Males responding to Males | $1.06_a$ | 1.08 | 1.45 | 0.74 |

Note means in the same column sharing subscripts were significantly different

## 4. Discussion

In this paper, we reported two studies that investigated gender differences in response to Facebook status updates from same gender friends compared to opposite gender friends in public and private contexts Both found that females' private messages. Both studies reported very similar findings, even though the sample population, data collection and design of the studies were very different. Both found that females showed significantly higher levels of emotional support in public replies to female friends than males' public replies to male friends. The first study found that females' private messages to females showed higher levels of emotional support than males' private messages to males, but this difference was not significant in the second study. Furthermore, both studies found that gender differences were greatest for public replies compared to private messages for same gender friends. Moreover, in study 1 males' level of support was highest in private messages compared to public messages for same gender friends. A similar difference was observed in study 2, but this difference was not significant. Finally, both studies reported no significant gender difference in terms of the level of emotional support in public replies and private messages to opposite gender friends

The findings from these studies support the socialization explanation because the gender difference was greatest for response to Facebook status updates from same gender friends rather than opposite gender friends. Gender differences in peer activities when children are growing up lead to gender differences in language use in adulthood (Maltz & Borker, 1982 Leaper & Ayres, 2007, Leaper, 2014) Females use language to create and maintain social closeness through supportive and inclusive forms of talk, whereas males use language to assert their dominance through commands and challenging statements. Gender differences in language will be greatest in same gender interactions, because partners of the same gender share similar social norms concerning language and communication (Carli, 1989, 1990; Leman, Ahmed,

& Ozarow, 2005; Leman, Macedo, Bluschke, Hudson, Rawling, & Wright, 2011, Leaper, 2014). In opposite gender interactions, participants do not share these norms and gender differences in language use are reduced. This prediction was supported in the two studies reported in this paper and is consistent with more general research on gender differences in language. Leaper and Ayres (2007) in their meta-analysis reported that there were greater gender differences in same gender interactions than in opposite gender interactions.

The findings also support the social context explanation and replicate findings reported by the Joiner et al., (2014). The two studies in this paper found gender differences in public replies and private messages, but the gender difference was greatest in public replies than in private messages. Furthermore, the two studies in this paper found that males showed higher levels of support to a Facebook status update from a same gender friend in private messages than in public replies. These findings partially replicate the original study by Joiner et al., (2014) and support previous research, which has shown that people are more likely to behave in stereotypical ways in front of larger unfamiliar groups of people than in front of small familiar groups of people (Deaux & Major, 1987). Public replies to Facebook status updates can be viewed as communication in a public context in front of unfamiliar people, whereas private messages can be viewed as private communications with a familiar person. The Facebook status updates are examples of self-disclosure (a stereotypically female topic), which may explain why females appeared to be more comfortable showing public displays of emotional support when responding to these Facebook status update than males, whereas in private, individuals behave in less stereotypical ways and thus the gender differences observed were reduced and/or disappeared.

Another interesting finding from these studies was the unsupportive comments made by males to Facebook status updates from other males. Comments, such as 'grow a set of balls', can be seen as offensive or viewed as 'banter'. Banter is defined as 'the playful exchange of teasing remarks' (Oxford Dictionaries, 2010) and is often associated with male conversations because it is consistent with the cultural discourses surrounding masculinity (Kiesling, 2007). There has been considerable research on banter in face to face interactions and researchers argue that it can play a supportive and positive role in male interactions (Adams et al., 2010; Gill, Henwood, & McLean, 2005, Hein & O'Donohoe, 2014). Plester and Sayers (2007) describe how using banter is a social glue which keeps groups together. Others view it more negatively and show how it can be exclusionary. Furthermore, Kehily and Nayak, (1997) argue it's a way heterosexual masculinities are organized and regulated through humor, which is used to expose police and create gender sexual hierarchies within young male cultures. Young men who do not conform to dominant heterosexual codes of masculinity are often ridiculed and can be the targets for banter and abuse. This view shows the disciplinary effects of humor on sex/gender identities. We suggest that the unsupported comments observed in this study could be viewed as an example of banter, but further research is required to confirm this explanation and to explore the role of this type of humor in social networking sites and examine whether it is seen as supportive and expressing solidarity or negatively as a way of maintaining the dominant heterosexual codes of masculinity.

Although there are many similarities between the two studies in this paper, there is also an interesting difference in effect size between the two studies. In study 1 the effect size for public replies was large and for private messages it was medium. In contrast in study 2, the effect sizes were small for both private and public messages (Cohen, 1988). There are a number of possible explanations for this difference. The first is the use of crowdsourcing as a method of data collection. In study 1 we used a

sample of undergraduate students and in study 2 we used crowdsourcing. Concerns have been raised about using crowdsourcing as a method of recruitment and testing. Some researchers have questioned the motivation of participants recruited via this method and whether the anonymity provided by Internet participation may have a negative effect on respondents. However, recent research has shown that it is both reliable and valid method and certainly as reliable and as valid as more conventional methods of sampling undergraduate students (Behrend, Sharek, Meade, & Wiebe, 2011; Buhrmester, Kwang, & Gosling, 2011; Summerville & Chartier, 2012). Furthermore, anonymity may be more of a benefit than a detriment (Joinson, 1999; Joinson, Woodley, & Reips, 2007). Another explanation for the difference in findings between the two studies is that the age difference between the two samples. Research on gender differences in language has found that those differences are mitigated with age (Leaper & Ayres, 2007). Self-presentation concerns may diminish with age, as individuals become more comfortable with their personal identities. (LaFrance, Hecht, & Paluck 2003). Younger women may be especially concerned with appearing "nice" (i.e., using affiliative speech), and younger men may be concerned with appearing "in control" (i.e., using assertive speech). We analyzed the effect of age on the gender difference in terms of level of support, but found no significant interaction between age and group, but the sample size was very small for some of the cells and so is difficult to drawn any firm conclusions. Further work is required to explicitly investigate whether the gender differences we have observed in these studies are mediated by the age of the participants.

One limitation of these studies was the use of questionnaires rather than observing naturalistic responses to Facebook status updates. Although the current study attempted to reduce this limitation by presenting actual Facebook status updates and asking participants to imagine they were posted by a close friend, this emulation was possibly not truly authentic. Ultimately, a questionnaire enquiring about a theoretical

status update by a faceless friend lacks the authenticity of genuine conversation between friends on Facebook. It also fails to account for the wider social context that would be attached to a real Facebook status update, such as the presence of other users, status updates and comments by other people, the character of the friend who posted the status update, their previous posting history and real life circumstances. This brings some doubt to how well these findings extend to social networking sites or real world language use. Future studies should investigate what kind of influence replies from other people would have in this context. For example, would a status update that has received overwhelmingly unsupportive/supportive comments from other posters yield different findings than obtained in this study in terms of content and likelihood of replying?

In conclusion, we found that females showed higher levels of emotional support in public replies and private messages than males in response to a Facebook status update from a same gender friend, but this gender difference was greatly reduced in private messages and disappeared altogether in response to a Facebook status update from an opposite gender friend. Males were more supportive to a Facebook status update from male friend in private than in public. These findings provide support for both the socialization and the social context explanation for gender differences in language and shows that gender has an important role to play in the language used on social networking sites.

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